

United States Department of Agriculture,

DIVISION OF AGROSTOLOGY.

[Grass and Forage-Plant Investigations.]

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THE GRASSES IN ELLIOTT'S "SKETCH OF THE BOTANY OF SOUTH CAROLINA AND GEORGIA."

One of America's most distinguished botanists was Stephen Elliott, born at Beaufort, S. C., in 1771. He was a man of marked ability, and began his career as a legislator, in which capacity he served his State for many years, taking a leading part in many of the important measures of his day. Although constantly engaged in public and engrossing financial business, he did not neglect literary and scientific pursuits. He found time during his busy life to prepare what he modestly termed a "Sketch of the Botany of South Carolina and Georgia," a work of 1,344 pages, written in Latin and English, and containing a dozen finely executed plates, illustrating nearly 50 species of grasses and sedges. The work is an enduring monument to Elliott's scientific skill and acumen. Not until one has prepared a book where almost every line contains a statement of fact learned from original observation, can he fully appreciate the amount of patience and labor involved in the preparation of such a work as the "Sketch of the Botany of South Carolina and Georgia." For many years Elliott's "Sketch" was the only botanical authority for the plants of the region it embraced, and to-day it remains indispensable to the working systematic botanists of our country.

Elliott began the publication of his work in parts. The first part, including pp. 1-96, was published in October, 1816; the second, which carried the work to pp. 222, was issued in February, 1817. This second part contained descriptions of the grasses, and is, therefore, the one most immediately interesting to agrostologists.¹ The entire work was finally issued in two volumes, the first volume, containing parts 1-5, was published in 1821, as indicated by the title page, the second in 1824.

The following notes presented here for publication are based upon a careful examination of the collection several years ago by myself, the notes then taken having been recently verified by Mr. Elmer D. Merrill, who was by my direction sent to Charleston for that purpose. I wish to thank the authorities of the College of Charleston for kindly extending to the Department the privileges accorded to it, enabling us to accomplish our object.

NOTES ON THE SPECIES.

Many species noted below were described by Elliott as new, but some had been published by foreign botanists who had received specimens from American collectors, and a few of the earlier published species taken up by Elliott were misunderstood by him. There is much existing doubt respecting the identity of some of Elliott's

¹ *Anthoxanthum* and the species of *Erianthus* were published in the first part.

species of grasses, and as the only means of clearing up this confusion and preventing further error it was necessary to examine the specimens upon which they were based. Fortunately Elliott's herbarium has been preserved and is now the property of the College of Charleston. The herbarium consists of 28 volumes of folios, 12 by 23 inches in size, and the specimens are for the most part attached to the sheets and labeled both on the outside of the fold and on the inside. Often several species are in one sheet, but in such cases each specimen is separately labeled. A part of the herbarium, especially that containing the grasses, is in very good state of preservation, while in several of the volumes of other plants nearly all the specimens have been destroyed by insects. The *Gramineae* occupy exclusively one volume and portions of three others.

Anthoxanthum odoratum Linn.; Ell. Sk. 1:37.

Erianthus alopecurioides Ell. Sk. 1:38.=*Erianthus saccharoides* Michx.

Erianthus brevibarbis Michx.; Ell. Sk. 1:39. On this cover is also the name "*Erianthus contortus*," which is scratched out. The specimen in the Herbarium of Elliott is matched by No. 1426 A. P. Anderson, South Carolina, October 1, 1897, in the U. S. National Herbarium.

Erianthus strictus Baldwin; Ell. Sk. 1:39. This is the same as a specimen in the Herb. Acad. Nat. Sci., Phila., so labeled by Baldwin.

Erianthus contortus Ell. Sk. 1:40. This name appears in the Herbarium of Elliott only on the cover with *Erianthus brevibarbis* noted above.

Cenchrus echinatus L.; Ell. Sk. 1:93.

Cenchrus tribuloides L.; Ell. Sk. 1:93. In this cover is true *Cenchrus tribuloides* L., and a specimen of *Cenchrus macrocephalus* (Doell.) Scribn.

Spartina juncea Ell. Sk. 1:94.=*Spartina patens* (Ait.) Muhl.

Spartina polystachya Michx.; Ell. Sk. 1:95.

Spartina glabra Muhl.; Ell. Sk. 1:96.=*Spartina stricta maritima* (Walt.) Scribn.

Arundinaria macrosperma Michx.; Ell. Sk. 1:96.

Muhlenbergia diffusa Ell. Sk. 1:98.

Muhlenbergia erecta Muhl.; Ell. Sk. 1:98.=*Brachyelytrum erectum* (Schreb.) Beauv.

Trichodium laxiflorum Michx.; Ell. Sk. 1:99.=*Agrostis hyemalis* (Walt.) B. S. P.

Trichodium perennans Walt.; Ell. Sk. 1:99=A form of the grass now referred to *Agrostis altissima* (Walt.) Tuckerm.

Leersia virginica Willd.; Ell. Sk. 1:100=*Homalocenchrus virginicus* (Willd.) Britton.

Leersia lenticularis Michx.; Ell. Sk. 1:100.=*Homalocenchrus lenticularis* (Michx.) Kuntze.

Leersia oryzoides Linn.; Ell. Sk. 1:101.=*Homalocenchrus oryzoides* (Linn.) Poll.

Phalaris americana Ell. Sk. 1:102.=*Phalaris caroliniana* Walt.

Aulaxanthus ciliatus Ell. Sk. 1:102.=*Anthænantia villosa* (Michx.) Benth.

Aulaxanthus rufus Ell. Sk. 1:103.=*Anthænantia rufa* (Ell.) Schultes. Specimen not seen.

- Milium paspaloides** Ell. Sk. 1:104. = *Paspalum paspaloides* (Michx.) Scribn.
This species is in Elliott's Herbarium under the name "*Milium corrugatum*."
With it is a note by Ravenel saying "This is *M. paspaloides* Ell. Sk."
- Paspalum setaceum** Michx.; Ell. Sk. 1:104. Not seen.
- Paspalum deblie** Michx.; Ell. Sk. 1:105. Not seen.
- Paspalum ciliatifolium** Michx.; Ell. Sk. 1:105. A form with long narrow leaves, which are regularly ciliate along the margins, otherwise smooth. Sheaths hairy at the throat. Racemes solitary. Spikelets very smooth, 2 mm. long.
- Paspalum dasyphyllum** Ell. Sk. 1:105. Leaves 15 cm. long, 5 to 7 mm. wide, pubescent on both sides with stiff, rather long, spreading, papillate hairs. Rachis of the racemes about 1 mm. broad, undulate. Spikelets slightly pubescent, about 1.5 mm. long, crowded.
- Paspalum praecox** Walt.; Ell. Sk. 1:106. This resembles *Paspalum purpurascens*. Spikelets about 2 mm. long, in four rows. Rachis flat, as broad as the rows of spikelets. Racemes 3, ascending.
- Paspalum laeve** Michx.; Ell. Sk. 1:106.
- Paspalum floridanum** Michx.; Ell. Sk. 1:107. In Elliott's Herbarium the plant under this name is identical with the specimen under *Paspalum laeve* except in having the sheaths somewhat pubescent.
- Paspalum plicatulum** Michx.; Ell. Sk. 1:107. Specimen not seen.
- Paspalum purpurascens** Ell. Sk. 1:108. = *Paspalum boscianum* Flügge.
- Paspalum distichum** Linn.; Ell. Sk. 1:108. Specimen not seen.
- Paspalum vaginatum** Ell. Sk. 1:109. = *Paspalum membranaceum* Walt.
- Ceresia fluitans** Ell. Sk. 1:109 = *Paspalum mucronatum* Muhl.
- Phleum pratense** L.; Ell. Sk. 1:110. The only specimen under this name in Elliott's herbarium is from Sullivan's Island, and is *Polypogon monspeliensis* (L.) Desf.
- Alopecurus geniculatus** L.; Ell. Sk. 1:111.
- Panicum cenchroides** Ell. Sk. 1:111 = *Cenchrus myosuroides* H. B. K.
- Panicum laevigatum** Muhl.; Ell. Sk. 1:112 = *Chaetochloa imberbis* (Poir.) Scribn. This species is in Elliott's herbarium under the name "*Panicum glaberimum*," and is exactly matched by a specimen in the herbarium of the U. S. Dept. Agriculture, collected in North Carolina by G. McCarthy in 1889, distributed as *Setaria glauca* var. *laevigata* Chapm.
- Panicum glaucum** L.; Ell. Sk. 1:112 = *Chaetochloa glauca* (L.) Scribn.
- Panicum glaucum** var. *glaucum*? Ell. Sk. 1:113 = *Chaetochloa corrugata parviflora* (Poir.) Scribn. & Merrill.
- Panicum glaucum** var. *flavescens* Ell. Sk. 1:113 = A yellow-awned form of *Chaetochloa glauca* (L.) Scribn.
- Panicum glaucum** var. *purpurascens* Ell. Sk. 1:113 = A short-awned form of *Chaetochloa imberbis* (Poir.) Scribn.
- Panicum corrugatum** Ell. Sk. 1:113 = *Chaetochloa corrugata* (Ell.) Scribn., the form so considered in Bul. 21:22, fig. 11, of this Division, and matched by No. 108 T. H. Kearney, Apalachicola, Fla., July 15, 1895, in the U. S. Nat. Herb.
- Panicum italicum** Walt.; Ell. Sk. 1:115 = *Chaetochloa magna* (Griseb.) Scribn.
- Panicum crus-galli** L.; Ell. Sk. 1:114 = The form so considered to-day. Var. *muticum* is the awnless form. Var. *aristatum* is not represented in the herbarium. Var. *hispidum* is *Panicum walteri* Pursh.

Panicum walteri Ell. Sk. 1:115 = *Panicum digitarioides* Carpenter. In this sheet is a label bearing the name "*P. dimidiatum*." Muhlenberg considered this species under the same name (*Panicum walteri*). See Scribner & Merrill, Circular 27:2, of this Division.

Panicum hirtellum Michx.; Ell. Sk. 1:115 = *Oplismenus hirtellus* R. & S.

Panicum gibbum Ell. Sk. 1:116.

Panicum molle Michx.; Ell. Sk. 1:116 = *Eriochloa mollis* Kunth.

Panicum gymnocarpum Ell. Sk. 1:117.

Panicum geniculatum Muhl.; Ell. Sk. 1:117 = *Panicum proliferum* Lam.

Panicum anceps Michx.; Ell. Sk. 1:118. Not seen.

Panicum hians Ell. Sk. 1:118 = *Panicum melicarium* Michx.

Panicum latifolium Walt.; Ell. Sk. 1:119 = *Panicum latifolium* Linn. (excluding reference to Sloane). A specimen of *Panicum currani* Ashe, is also in the cover.

Panicum scoparium Lamarck; Ell. Sk. 1:119. Recent investigations have shown that *Panicum scoparium* Lam., has been entirely misunderstood by American botanists and that it is the form described by Elliott as *Panicum viscidum*. See Scribner & Merrill Bul. 24:34 of this Division. A description of Elliott's plant is given below.

Panicum ravenelii Scribn. & Merrill, U. S. Dept. Agr. Div. Agros. Bul. 24:34. January 9, 1901. *Panicum scoparium* of Ell. Sk. Bot. S. C. and Ga. 1:119. 1817, not Lam. Encycl. 4:144. 1797.—An erect or ascending, caespitose perennial 3 to 6 dm. high, with broad, ascending leaves, large spikelets and generally few flowered panicles. Culms at first simple, later becoming branched, rather densely papillate-pubescent with ascending or nearly appressed hairs; nodes bearded with a dense ring of short spreading hairs, and with a smooth ring immediately below; sheaths shorter than the internodes, or the upper ones crowded and overlapping, striate, distinctly papillate-pubescent, densely bearded on the back at the apex; ligule a fringe of rather stiff hairs 3 to 5 mm. long; leaf-blades lanceolate, acute, slightly narrowed at the rounded and somewhat clasping base 8 to 13 cm. long, 1.5 to 2 cm. wide, ciliate on the cartilaginous margins, rather densely pubescent beneath with soft hairs, glabrous above or rarely with few scattered papillate hairs, nerves faint above, very prominent on the lower surface. Panicles about 10 cm. long, the branches spreading or the lower ones often erect; rachis and branches densely pubescent with short hairs. Spikelets 4 mm. long, ovate, obtuse, slightly pubescent with short spreading hairs; first glume acuminate, about one-third as long as the spikelet; second and third glumes 9 to 11 nerved; flowering glume very smooth.

Type specimen in the Herbarium of Elliott, College of Charleston, Charleston, S. C., type locality, South Carolina.

GENERAL DISTRIBUTION: in shaded fertile soil, District of Columbia south to Florida and Texas, May to September, not common.

SPECIMENS EXAMINED: *District of Columbia*: near Eastern Branch, L. F. Ward, June 16, 1881; near Chain Bridge, E. S. Steele, 1899. *Tennessee*: no locality. S. M. Bain, 1893. *South Carolina*: no locality, Stephen Elliott, type in Herbarium of Elliott; Aiken, W. H. Ravenel—F. L. Scribner, 1894; *Florida*: Apalachicola, A. W. Chapman, 2994a Biltmore Herbarium; Monticello, 305 R. Combs, August 4, 1898. *Arkansas*: "Northwest Arkansas" 31 F. L. Harvey; Benton County, E. N. Plank. *Texas*: Harvester, No. 7 F. W. Thurow, June, 1898; Waller, 7a F. W. Thurow, 1898.

This species is readily distinguished from *Panicum pauciflorum* Ell., and *P. scribnerianum* Nash, to which it is most closely related, by its much broader pubescent leaves and larger spikelets. Of the specimens cited above, S. M. Bain, 1893; Steele, 1899; 2994a Biltmore Herbarium, and the specimens from Ravenel have been carefully compared with Elliott's type.

Panicum pauciflorum Ell. Sk. 1:120. A distinct species, related to *Panicum scribnerianum* Nash. The same as the specimen in the Herbarium of Columbia University, so labeled by Elliott = *Panicum oligosanthos* Schultes.

Panicum virgatum Linn.; Ell. Sk. 1:120.

Panicum amarum Ell. Sk 1:121. The specimen in the Herbarium of Elliott under this name is a robust form of *Panicum virgatum* Linn. From Elliott's description, however, it is very evident what plant he had in mind. The true *Panicum amarum* Ell., is represented by the following specimens in the U. S. National Herbarium. *Virginia*: Ocean View, Geo. Vasey, August 5, 1890; Virginia Beach 2063, 2064 T. H. Kearney, jr., October 6, 1898; 3090, T. A. Williams, September 24, 1900. *Florida*: Key Largo, A. H. Curtiss, November 7, 1894; Lake Worth Inlet, 5527, A. H. Curtiss, September 2, 1895; Indian River, 3578 Curtiss; Cape Malabar, Curtiss, September, 1879. The small form which was called *Panicum amarum minor* Vasey & Scribn. U. S. Dept. Agr. Div. Bot. Bul. 8:38. 1889, is here proposed as the following species.

PANICUM AMAROIDES Scribn.

& Merrill sp. nov. (*Panicum amarum minor* Vasey & Scribn. U. S. Dept. Agr. Div. Bot. Bul. 8:38. 1889, not *P. capillare*

minor Muhl. 1817.) (Fig. 1.) A glabrous, glaucous, non-caespitose perennial, 3 to 8 dm. high from horizontal root-stocks, with thick, often involute leaves and narrow, contracted

panicles. Culms erect, or ascending, often somewhat branched below, stout, the lower internodes very short; nodes smooth; sheaths loose, glabrous, crowded, and overlapping; ligule a dense fringe of soft white hairs 2 to 3 mm. long; leaf-blades very thick, smooth, lanceolate, acuminate, not narrowed at the rounded base, 1 to 3 dm. long, 5 to 10 mm. wide, strongly involute at least above. Panicles 1 to 2.5 dm. long, few flowered, narrow, the branches appressed 1 to 7 cm. long. Spikelets glabrous ovate acuminate 5 to 6 mm. long; first glume clasping the base of the spikelet, strongly nerved



FIG. 1.—*Panicum amaroides* Scribn. & Merrill. *a*, shows habit of the plant; *c*, a spikelet somewhat enlarged; *d*, the perfect floret showing the flowering glume, palea, stamens, and stigmas; *e*, anterior view of the same with the palea closed; *b*, a portion of panicle of *P. amarum* Ell.

PANICUM AMAROIDES Scribn. & Merrill sp. nov.—Continued.

three-fourths or sometimes as long as the spikelet, usually scabrous on the keel near the apex; second glume slightly exceeding the third, 7-nerved similar to the first; third glume thin, faintly 7-nerved, inclosing the flowering glume and palea, subtending a thin palea of equal length which bears a staminate flower; flowering glume elliptical-ovate, smooth, 3 to 3.5 mm. long. Palea as long as the glume and of similar texture, plane or nearly so.

Type specimen collected at Fortress Monroe, Va., by Dr. George Vasey, in 1879.

GENERAL DISTRIBUTION: In sands along the coast, Connecticut to Florida and Mississippi, August to October.

SPECIMENS EXAMINED: *Connecticut:*

New Haven, J. A. Allen, September 30, 1876; A. L. Winton, jr., 1887; D. C. Eaton, no date. *New York:* Staten Island, A. A. Tyler, September 17, 1895; Northville, L. I., H. W. Young, Nov. 5, 1872. *Delaware:* Sand dune, no locality, W. M. Canby, September. *Maryland:* Bay Ridge, F. L. Scribner, September 3, 1897. *Virginia:* Fortress Monroe, Geo. Vasey, 1879 (type); G. McCarthy, 1883; Ocean View, Geo. Vasey, Aug. 5, 1890; Virginia Beach, 3089 T. A. Williams, September 24, 1900. *North Carolina:* Ocracoke Island, 2317 T. H. Kearney, jr., October 17, 1898; Brunswick County, 211 G. McCarthy, August 11, 1885. *Mississippi:* Horn Island, 2854 S. M. Tracy, August 20, 1894–September 6, 1897.

This species is readily distinguished from *Panicum amarum* Ell. by its much smaller size, smaller panicles, larger spikelets, and longer first glume. In its habit of growth it is strikingly different from *Panicum amarum*. The following notes are from the field observations of Mr. T. A. Williams: *Panicum amarum* grows in densely caespitose bunches from 9 to 18 dm. high, from ver-



FIG. 2.—*Panicum ovale* Ell. a, b, c, spikelets; d, anterior view of the third glume, showing small palea; e, dorsal view of the fourth or fruiting glume; f, anterior view of same showing back of palea.

tical root-stocks. *Panicum amaroides* is not at all caespitose, sending up solitary culms from long horizontal root-stocks, and rarely attains a height of 8 dm. At Virginia Beach, where both species were observed, *Panicum amaroides* was in full bloom and at the same time *Panicum amarum* was in fruit or late bloom. The former species was closely grazed wherever it was accessible, while the latter was avoided by stock.

PANICUM AMAROIDES Scribn. & Merrill sp. nov.—Continued.

Panicum amaroides is an excellent sand binder, and although not caespitose, it covers considerable areas, holding the sands by means of its strong horizontal rootstocks.

Panicum scabriusculum Ell. Sk. 1:121.

Panicum nervosum Muhl.; Ell. Sk. 1:122=*Panicum commutatum* Schultes, and is exactly matched by the following specimens in the National Herbarium: *South Carolina*, Aiken, H. W. Ravenel, June 1, 1867; *Florida*, A. W. Chapman, no locality or date; 366 (in part) Chapman, no locality or date; Jacksonville, A. H. Curtiss, September.

Panicum multiflorum Ell. Sk. 1:122=*Panicum polyanthes* Schultes (*P. microcarpon* Muhl. Descr. 111. 1817.)

Panicum ovale Ell. Sk. 1:123.

(*Panicum erythrocarpon* Ashe, Journ. E. Mitch. Sci. Soc. 16: 90, 1900 is the same.) (Fig. 2.)

The specimen in the herbarium of Elliott to which this label is attached is matched by the following specimens: *North Carolina*: near Wilmington, W. W. Ashe, June, 1899 (cotype *Panicum erythrocarpon* Ashe). *South Carolina*: Aiken, H. W. Ravenel, May. *Florida*: A. H. Curtiss, 3583 N. Am. Plants (in part).

Panicum lanuginosum Ell. Sk.

Bot. S. C. and Ga. 1: 123. 1817.

(*Panicum tennesseense* Ashe, Journ. E. Mitch. Sci. Soc. 15: 52. 1898). (Fig. 3.) An erect or ascending, finally much-branched pubescent perennial 1.5 to 8 dm. high, with weak culms, thin leaves and slightly exserted, usually many-flowered panicles. Culms geniculate below, papillate-pilose with few weak, spreading hairs; nodes yellow, sparingly bearded with few reflexed hairs, and generally with a smooth ring immediately below; sheaths shorter than the internodes, rather loose, striate, papillate-pilose with scattered spreading hairs; leaf-blades spreading or ascending, thin, soft, lanceolate, 3 to 8 cm. long, 4 to 10 mm. wide, acute, slightly narrowed to the rounded base, scabrous on the margins, appressed-pubescent beneath with scattered, short, papillate hairs, and often also on the upper surface, giving the leaves a peculiar lustre or sheen. Panicles 4 to 8 cm. long, broadly ovate or subpyramidal, pale green; rachis pilose; branches capillary, spreading, the lower ones often densely flowered and interlaced, giving the panicle a characteristic matted

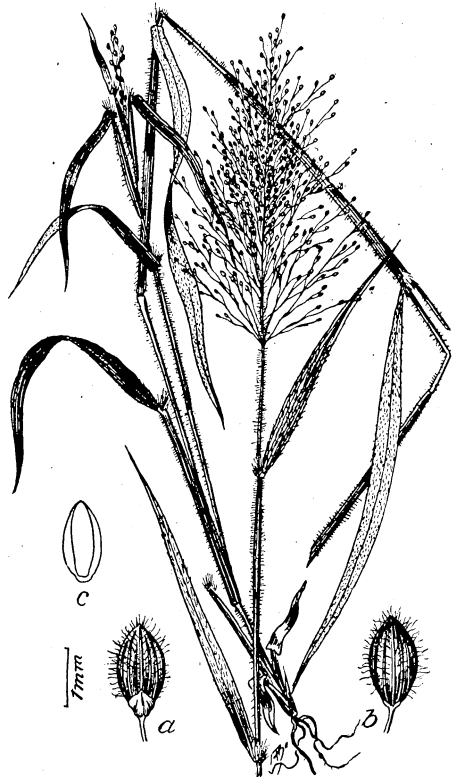


FIG. 3.—*Panicum lanuginosum* Ell. a, b, spikelets, in a the short first glume is seen; c, outline of anterior view of the fruiting glume showing back of palea.

Panicum lanuginosum Ell. Sk. Bot. S. C. and Ga. 1:123—Continued.

appearance; secondary panicles included, few flowered. Spikelets ovate, obtuse, 1.5 mm. long, first glume hyaline, acute, one-fourth as long as the spikelet; second and third glumes, rather strongly striate, pilose with rather long, weak, spreading hairs.

Type specimen in the herbarium of Elliott; type locality, Georgia.

GENERAL DISTRIBUTION: Low thickets, woods and swamps, Maine to Illinois, south to Kansas and Mississippi, May to August.

SPECIMENS EXAMINED: *Maine*: Orono, M. L. Fernald, 1892; Hiram, 48, 49 H. W. Merrill, 1897; East Auburn, 9 E. D. Merrill, 1898. *Vermont*: Brandon, F. H. Knowlton, 1882. *Massachusetts*: Framington, 741, 743 E. C. Smith, 1899; Salem, J. H. Sears, 1883. *Rhode Island*: Providence, T. J. Battey, 1886. *Connecticut*: New London, C. B. Graves, 1898; Portland, 134 F. Wilson, 1897. *New York*: Dresden Station, 4a C. H. Peck, 1898; Gansevoort, 7a Peck, 1897; Albany County, 7 Peck, 1897; Niagara County, 2, 3 E. C. Townsend. *Pennsylvania*: Easton, T. C. Porter, 1898. *District of Columbia*: F. L. Scribner, June 7, 1894; 33 T. H. Kearney, 1897. *Virginia*: no locality, 9 T. Holm, 1888. *Michigan*: Belle Isle, 597d, O. A. Farwell, 1892. *Tennessee*: Knoxville, F. L. Scribner 1891; La. Vergne County, 7087 Biltmore Herbarium (co-type of *Panicum tennesseense* Ashe); Knox County, T. H. Kearney, 1892; Franklin County, 30 H. Eggert, 1897; *Georgia*: no locality, Dr. Baldwin (type). *Mississippi*: Fairport, 3208 S. M. Tracy, 1897; Macon, 3223 Tracy, 1897. *Illinois*: Peoria, F. Brendel. *Iowa*: Lebanon, 35 Ball & Sample, 1898; Ames, 45 C. R. Ball, 1896. *Missouri*: Shannon County, 746, 760 B. F. Bush, 1894. *Kansas*: Cherokee County, 682, A. S. Hitchcock, 1896.

This species is characterized by its lax habit of growth, thin leaves which generally have a peculiar lustre or sheen, pale green generally somewhat imbricate panicles, at least in herbarium specimens, and long-pubescent spikelets. It is most closely allied to *Panicum unciphyllum* Trin. (*P. pubescens* of authors not Lam.) and is distinguished by the characters noted above. The type specimen is exactly matched by specimens collected at Knoxville, Tenn., and Brookland, D. C., by F. Lamson-Scribner, cited above. The specimen from Elliott in the herbarium of Columbia University, noted in Bul. Torr. Bot. Club 27:595, 1900, as being identical with *Panicum orangensis* Ashe, is very different from the specimen in Elliott's herbarium which must be considered as the type of the species. Ashe's name (*Panicum orangensis*) should be retained for that species. *Panicum tennesseense* Ashe is only the branched state of *P. lanuginosum* Ell.

Panicum viscidum Ell. Sk. 1:123 = *Panicum scoparium* Lam., see Scribn. & Merrill, U. S. Dept. Agr. Div. Agros. Bul. 24:34. 1901.

Panicum dichotomum L.; Ell. Sk. 1:124. In this cover are several unrecognizable scraps and a specimen of *Panicum barbulatum* Michx.

Panicum villosum Ell. Sk. 1:124. This is exactly identical with the form so considered by Nash, Bul. Torr. Bot. Club, 23:147. 1896. The synonymy of this species is as follows:

PANICUM CONSANGUINEUM Kunth, Enum. 1:106. 1833. (*Panicum villosum* Ell. Sk. Bot. S. C. and Ga. 1:124. 1817, not Lamarck, 1791; *Panicum georgianum* Ashe, Journ. E. Mitch. Sci. Soc. 15:36. 1898; *Panicum cahoonianum* Ashe, ibid., 113. 1898.)

Panicum sphaerocarpon Ell. Sk. 1:125.

Panicum pubescens Lam.; Ell. Sk. 1:125 = *Panicum pseudopubescens* Nash.

Panicum strigosum Muhl.; Ell. Sk. 1:126. The type is well matched by No. 3597 A. H. Curtiss. A specimen from Elliott in the Herbarium of Columbia University is the same. (*Panicum longipedunculatum* Scribn.)

Panicum ciliatum Ell. Sk. 1:126.

Panicum ensifolium Baldw.; Ell. Sk. 1:126. (Fig. 4.) This is exactly the form described by Ashe as *Panicum cuthbertii*, Journ. E. Mitch. Sci. Soc. 15:48. 1898. The grass described by Ashe, Journ. E. Mitch. Sci. Soc. 1. c., 46. as *Panicum ensifolium* Baldw., is *Panicum tenue* Muhl.

Panicum barbulatum Michx.; Ell. Sk. 1:127. This is very distinct from the form considered as *Panicum barbulatum* Michx. to-day, and is proposed below as a new species.

PANICUM SUBBARBULATUM
Scribn. & Merrill sp. nov. (*Panicum barbulatum* of Ell. Sk. Bot. S. C. and Ga. 1:127. 1817, not Michx. Fl. Bor. Am. 1:49. 1803.

An erect or ascending, glabrous, caespitose perennial, 4-9 dm. high, with small panicles, bearded nodes, and pubescent spikelets. Culms wiry, simple, or becoming branched above; nodes bearded with reflexed hairs; sheaths much shorter than the internodes, ciliate on the margins; ligule a short ciliate ring; leaf-blades lanceolate, primary ones 5-6 cm. long, 5-8 mm. wide, spreading, the secondary ones 3-4 cm. long, 3-5 mm. wide, narrowed at the base, acute, scabrous on the margins, the nerves rather prominent. Panicles exserted, ovate, 4-7 cm. long, the branches ascending. Spikelets ovate, obtuse, 2 mm. long, pubescent; first glume about one-fourth as long as the spikelet.

The type of the species in the herbarium of Elliott is well matched by the following specimens: 3600a A. H. Curtiss, Sumpter County, Fla., margins of pine-barren ponds; 3388 S. M. Tracy, June 13, 1897, Morrisonville, Miss.

This species is readily distinguished from *Panicum barbulatum* Michx., by its smaller size, smaller leaves, and panicles and larger pubescent spikelets.

Panicum microcarpon Muhl.; Ell. Sk. 1:127 = *Panicum barbulatum* Michx.

Panicum nitidum? Lam.; Ell. Sk. 1:128. = *Panicum erectifolium* Nash.

Panicum melicarium Michx.; Ell. Sk. 1:128. Not in the herbarium. There is, however, a specimen of *Sporobolus junceus* in the collection, evidently from Muhlenberg, so labeled, but corrected to *Agrostis junceus* by Elliott.

Panicum debile Ell. Sk. 1:129. = *Panicum verrucosum* Muhl.

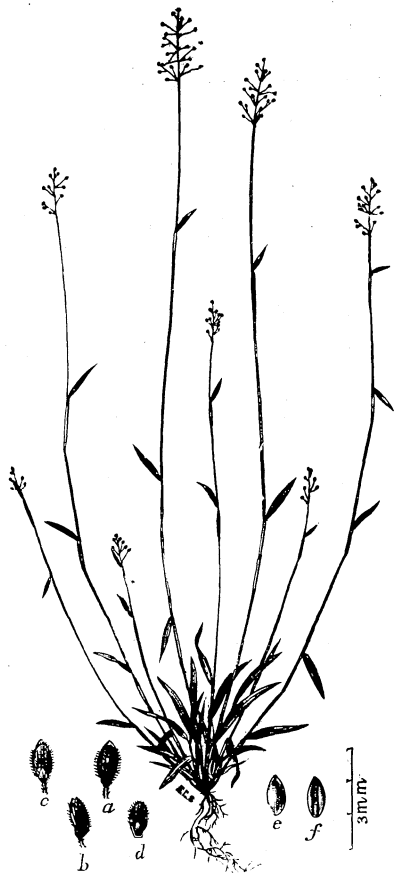


FIG. 4.—*Panicum ensifolium* Baldw. a, b, c, spikelets; d, anterior view of the third glume, showing small palea; e, f, fruiting glume.

- Panicum angustifolium* Ell. Sk. 1:129. This is well matched by 4615 S. M. Tracy, Biloxi, Mississippi, June 14, 1898. Culm leaves 15–20 cm. long, 4–6 mm. wide, very long acuminate and hairy at the base. Panicle few-flowered. Spikelets 3 mm. long, acute.
- Panicum divergens* Muhl.; Ell. Sk. 1:130 = *Panicum cognatum* Schultes.
- Digitaria sanguinalis* Ell. Sk. 1:131 = *Panicum sanguinale* Linn.
- Digitaria villosa* Walt. ? Ell. Sk. 1:132 = *Panicum serotinum* Trin.
- Digitaria filiformis* Ell. Sk. 1:132 = *Panicum filiforme* Linn.
- Digitaria dactylon* Ell. Sk. 1:133 = *Cynodon dactylon* Pers.
- Agrostis arachnoides* Ell. Sk. 1:134 = *Agrostis elliottiana* Schultes.
- Agrostis tenuiflora* Ell. Sk. 1:134 = *Muhlenbergia diffusa* Schreb.
- Agrostis sericea* Ell. Sk. 1:135 = *Agrostis hyemalis* (Walt.) B. S. P. Specimen from Schweinitz.
- Agrostis trichopodes* Ell. Sk. 1:135 = *Muhlenbergia trichopodes* (Ell.) Chapm.
- Agrostis decumbens* Muhl.; Ell. Sk. 1:136 = *Agrostis verticillata* Vill.
- Agrostis dispar* Michx.; Ell. Sk. 1:136. Not in the herbarium. *Agrostis dispar* Michx. in the herbarium of the Paris Museum of Natural History, is a form of *Agrostis alba* Linn., identical with *Agrostis stolonifera* of European botanists.
- Agrostis alba* L.; Ell. Sk. 1:137.
- Agrostis juncea* ? Michx.; Ell. Sk. 1:137 = *Sporobolus junceus* Kunth.
- Agrostis clandestina* Muhl.; Ell. Sk. 1:138. This species is not represented in the herbarium.
- Agrostis indica* Ell. Sk. 1:138 = *Sporobolus indicus* R. Br.
- Agrostis virginica* Ell. Sk. 1:139 = *Sporobolus virginicus* Kunth.
- Stipa avenacea* Ell. Sk. 1:139.
- Stipa stricta* Lam.; Ell. Sk. 1:140. This species is not represented in the herbarium.
- Stipa capillaris* Lam.; Ell. Sk. 1:140. This species is represented in Elliott's herbarium under the name *Stipa sericea* and is *Muhlenbergia capillaris* Trin.
- Aristida spiciformis* Ell. Sk. 1:141.
- Aristida dichotoma* Michx.; Ell. Sk. 1:141.
- Aristida gracilis* Ell. Sk. 1:142. A specimen in the herbarium with the following label "*Aristida geniculata* Rafin. n. sp. ? Rafinesque, Long Island," is the same. *Aristida geniculata* was published by Rafinesque in American Monthly Magazine, 2:119. Dec., 1817.
- Aristida stricta* Michx.; Ell. Sk. 1:142.
- Aristida lanosa* Muhl.; Ell. Sk. 1:143.
- Andropogon ciliatus* Ell. Sk. 1:144 = *Andropogon nutans avenaceus* Hack.
- Andropogon nutans* Ell. Sk. 1:144 = *Andropogon nutans linneanus* Hack.
- Andropogon ambiguus* Michx.; Ell. Sk. 1:145 = *Gymnopogon ambiguus* (Michx.) B. S. P.
- Andropogon melanocarpus* Ell. Sk. 1:146.
- Andropogon scoparius* Michx.; Ell. Sk. 1:146. This is in Elliott's herbarium under the name "*Andropogon purpurascens*."
- Andropogon ternarius* Michx.; Ell. Sk. 1:147 = *Andropogon argyræus* Schultes.
- Andropogon argenteus* Ell. Sk. 1:148 = *Andropogon argyræus* Schultes.
- Andropogon vaginatus* Ell. Sk. 1:148 = *Andropogon virginicus* L., and is under this name in the herbarium.

- Andropogon dissitiflorus* Michx.; Ell. Sk. 1:149 = A form of *Andropogon glomeratus* (Walt.) B. S. P.
- Andropogon macrourus* Michx.; Ell. Sk. 1:149 = *Andropogon glomeratus* (Walt.) B. S. P.
- Andropogon tetrastachys* Ell. Sk. 1:150 = *Andropogon virginicus tetrastachys* (Ell.) Hack.
- Andropogon furcatus* Muhl.; Ell. Sk. 1:150.
- Aira pallens* var. *aristata* Muhl.; Ell. Sk. 1:151 = *Trisetum pennsylvanicum* (Linn.) Beauv.
- Aira flexuosa* Ell. Sk. 1:151 = *Deschampsia flexuosa* (L.) Trin.
- Aira purpurea* Walt.; Ell. Sk. 1:152 = *Triplasis purpurea* (Walt.) Chapm.
- Aira capillacea* Lam.; Ell. Sk. 1:152. This species is not represented in the herbarium.
- Aira triflora* Ell. Sk. 1:153 = *Poa*, sp. indet.
- Aira obtusata* Michx.; Ell. Sk. 1:153 = *Eatonia obtusata* A. Gray.
- Aira mollis* Muhl.; Ell. Sk. 1:154 = *Eatonia nitida* (Spreng.) Nash.
- Melica glabra* Michx.; Ell. Sk. 1:154 = *Melica nutica* Walt.
- Dactylis glomerata* L.; Ell. Sk. 1:155.
- Poa capillaris* L.; Ell. Sk. 1:156 = *Eragrostis capillaris* Nees.
- Poa tenuis* Ell. Sk. 1:156 = A very small-flowered form of *Eragrostis capillaris* Nees.
- Poa hirsuta* Michx.; Ell. Sk. 1:157. Not in the herbarium.
- Poa parviflora* Pursh.; Ell. Sk. 1:157 = *Panicularia nervata* (Willd.) Kuntze.
- Poa conferta* Ell. Sk. 1:157 = *Eragrostis glomerata* (Walt.) L. H. Dewey. It is in the herbarium under the name "*Poa glomerata*."
- Poa annua* Linn.; Ell. Sk. 1:158.
- Poa autumnalis* Muhl.; Ell. Sk. 1:159.
- Poa viridis* Muhl.; Ell. Sk. 1:159 = *Poa pratensis* L.
- Poa angustifolia* Ell. Sk. 1:160 = *Poa pratensis* Linn.
- Poa tenella* Linn.; Ell. Sk. 1:160 = *Eragrostis pilosa* Beauv.
- Poa eragrostis* Ell. Sk. 1:161 = *Eragrostis purshii* Schrad.
- Poa nitida* Ell. Sk. 1:162 = *Eragrostis nitida* (Ell.) Chapm.
- Poa refracta* Muhl.; Ell. Sk. 1:162 = *Eragrostis refracta* (Muhl.) Scribn.
- Poa fluitans* Ell. Sk. 1:163 = *Panicularia fluitans* (Linn.) Kuntze.
- Poa reptans* Michx.; Ell. Sk. 1:163 = *Eragrostis hypnoides* (Lam.) B. S. P.
- Poa rigida* Ell. Sk. 1:164 = *Scleropoa rigida* (Kunth) Griseb.
- Poa quinquifida* Pursh; Ell. Sk. 1:164 = *Triodia seslerioides* (Michx.) Benth.
On the sheet are also the following names: "*Poa flava* Linn.;" "*Poa seslerioides* Mx."
- Poa ambigua* Ell. Sk. 1:165 = *Triodia ambigua* (Ell.) Benth.
- Briza eragrostis* Ell. Sk. 1:165 = *Eragrostis major* Host.
- Uniola paniculata* Ell. Sk. 1:166.
- Uniola spicata* L.; Ell. Sk. 1:166 = *Distichlis spicata* (L.) Greene.
- Uniola latifolia* Michx.; Ell. Sk. 1:167.
- Uniola nitida* Baldwin; Ell. Sk. 1:167.
- Uniola gracilis* Michx.; Ell. Sk. 1:168 = *Uniola laxa* (L.) B. S. P.
- Festuca tenella* Pursh; Ell. Sk. 1:168. This species is not represented in the herbarium.

Festuca polystachya Michx.; Ell. Sk. 1:169. This species is not represented in the herbarium = *Leptochloa fascicularis* (Lam.) A. Gray.

Festuca myurus L.; Ell. Sk. 1:169.

Festuca parviflora Ell. Sk. 1:170. This is apparently a young, undeveloped form of *Festuca octoflora* Walt., although it may prove to be distinct. Empty glumes nearly equal; flowering glumes nearly smooth, about 3 mm. long; awns about equaling the glumes in length.

Festuca duriuscula L.; Ell. Sk. 1:171 = *Festuca pratensis* Linn.

Festuca grandiflora Lam.; Ell. Sk. 1:171. Not in the herbarium.

Festuca unioloides Willd.; Ell. Sk. 1:171. Not in the herbarium.

Festuca nutans Ell. Sk. 1:172. In the same cover is a specimen of *Festuca obtusa* Spreng.

Bromus secalinus L.; Ell. Sk. 1:172.

Bromus ciliatus L.; Ell. Sk. 1:173.

Bromus purgans L.; Ell. Sk. 1:173. Not in the herbarium.

Avena spicata Ell. Sk. 1:174 = *Danthonia spicata* (L.) Beauv.

Avena pennsylvanica Ell. Sk. 1:174 = *Arrhenatherum elatius* (Linn.) Beauv.

Eleusine mucronata? Michx.; Ell. Sk. 1:175 = *Leptochloa mucronata* Kunth.

Eleusine indica Ell. Sk. 1:175.

Eleusine cruciata Ell. Sk. 1:176 = *Dactyloctenium aegyptium* Willd. It is in the herbarium under the name *Chloris mucronata*.

Monocera aromatica Ell. Sk. 1:177 = *Campulosus aromaticus* (Walt.) Trin.

Chloris petræa Michx.; Ell. Sk. 1:178.

Rottboellia dimidiata? Ell. Sk. 1:179 = *Stenotaphrum secundatum* (Walt.) Kuntze.

Elymus virginicus L.; Ell. Sk. 1:180.

Elymus striatus Ell. Sk. 1:180 = *Elymus canadensis* Linn.

Elymus europæus Ell. Sk. 1:181. Not in the herbarium.

Elymus hystrix Ell. Sk. 1:481 = *Asperella hystrix* (L.) Humb.

Panicum verticillatum L.; Ell. Sk. 1:Adv. 1. Not in the herbarium.

Panicum walteri Pursh.; Ell. Sk. 1:Adv. 1. This is the same as *Panicum crus-galli hispidum* Ell., page 114.

Panicum fusco-rubens Lam.; Ell. Sk. 1:Adv. 4. Not in the herbarium.

Panicum striatum Lam.; Ell. Sk. 1:Adv. 4. Not in the herbarium.

Panicum diffusum Swartz.; Ell. Sk. 1:Adv. 4. Not in the herbarium.

Panicum nodiflorum Lam.; Ell. Sk. 1:Adv. 5. Not in the herbarium.

Agrostis pauciflora Pursh.; Ell. Sk. 1:Adv. 5. Not in the herbarium.

Agrostis cinna Ell. Sk. 1:Adv. 5 = *Cinna latifolia* Griseb.

Agrostis lateriflora Michx.; Ell. Sk. 1:Adv. 6. The specimen in this sheet is *Calamagrostis canadensis* (Michx.) Beauv.

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Approved:

JAMES WILSON,
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